

Claims

1. An image pickup apparatus, comprising:
 - a solid-state image pickup device for outputting an image pickup signal corresponding to the amount of light incoming to a light receiving face thereof;
 - a light amount detector for measuring the received light amount; and
 - a correction circuit for detecting periodical variations of the received light amount from a detection output of said light amount detector and correcting the image pickup signal from said solid-state image pickup device with the detected periodical variations of the received light amount.
2. An image pickup apparatus according to claim 1, wherein the periodical variations are caused by the frequency of a power supply, and said correction circuit removes at least part of striped noise arising from the periodical variations of the incoming light amount.
3. An image pickup apparatus according to claim 1, wherein said solid-state image pickup device is a CMOS sensor.
4. An image pickup apparatus according to claim 1, wherein said light amount detector is means for detecting the received light amount on the real time basis.

5. An image pickup apparatus according to claim 1, wherein said light amount detector is provided in the proximity of said light receiving face.

6. An image pickup apparatus according to claim 5, wherein a plurality of such light amount detectors are provided around said light receiving face of said solid-state image pickup device.

7. An image pickup apparatus according to claim 5, wherein said light amount detector is provided leftwardly and rightwardly of and/or above and below said light receiving face of said solid-state image pickup device.

8. An image pickup apparatus according to claim 1, wherein a correction gain is calculated based on the detection output of said light amount detector, and the correction gain is inputted to a gain amplifier to correct the image pickup signal therewith.

9. An image pickup apparatus according to claim 8, wherein an empirically set calculation method is used for the calculation of the correction gain.

10. An image pickup apparatus according to claim 8, wherein the correction gain is calculated from a predictive value obtained by integrating the detection output of said light amount detector and predicting the sensor output value based on the integrated detection

output.

11. An image pickup apparatus according to claim 1, wherein the correction is performed by an analog calculation process of the image pickup signal before the image pickup signal is A/D converted.

12. An image pickup apparatus according to claim 1, wherein the correction is performed by a digital calculation process of the image pickup signal after the image pickup signal is A/D converted.

13. An image pickup apparatus according to claim 1, wherein said light amount detector has color filters provided on a light receiving face thereof and said correction circuit detects light amount variations of the different colors spectralized by said color filters.

14. An image pickup apparatus according to claim 13, wherein said color filters provided on said light receiving face of said light amount detector have spectralized light passing properties substantially same as those of color filters provided on said light receiving face of said solid-state image pickup device.

15. An image pickup apparatus according to claim 13, wherein correction gains of the colors spectralized by said color filters are calculated and, after the image pickup signal is separated into colors, the correction

gains of the colors are inputted to gain amplifiers to correct the image pickup signal therewith.

16. A striped noise removing method for an image pickup apparatus which includes a solid-state image pickup device for outputting an image pickup signal corresponding to the amount of light incoming to a light receiving face thereof, wherein

a light amount detector for measuring the received light amount is provided in the proximity of said light receiving face of said solid-state image pickup device, and

periodical variations of the received light amount caused by the frequency of a power supply are detected from a detection output of said light amount detector and the image pickup signal from said solid-state image pickup device is corrected with the detected periodical variations of the received light amount to remove at least part of striped noise arising from a periodical light emission characteristic of said light source.

17. A striped noise removing method for an image pickup apparatus according to claim 16, wherein said solid-state image pickup device is a CMOS sensor.

18. A striped noise removing method for an image pickup apparatus according to claim 16, wherein said

light amount detector is means for detecting the received light amount on the real time basis.

19. A striped noise removing method for an image pickup apparatus according to claim 16, wherein a plurality of such light amount detectors are provided around said light receiving face of said solid-state image pickup device and generally detect the amount of light of image pickup light incoming to said light receiving face.

20. A striped noise removing method for an image pickup apparatus according to claim 19, wherein said light amount detector is provided leftwardly and rightwardly of and/or above and below said light receiving face of said solid-state image pickup device.

21. A striped noise removing method for an image pickup apparatus according to claim 16, wherein a correction gain is calculated from the detection output of said light amount detector, and the correction gain is inputted to a gain amplifier to correct the image pickup signal therewith.

22. A striped noise removing method for an image pickup apparatus according to claim 21, wherein an empirically set calculation method is used for the calculation of the correction gain.

23. A striped noise removing method for an image pickup apparatus according to claim 21, wherein the correction gain is calculated from a predictive value obtained by integrating the detection output of said light amount detector and predicting the sensor output value based on the integrated detection output.

24. A striped noise removing method for an image pickup apparatus according to claim 16, wherein the correction is performed by an analog calculation process of the image pickup signal before the image pickup signal is A/D converted.

25. A striped noise removing method for an image pickup apparatus according to claim 16, wherein the correction is performed by a digital calculation process of the image pickup signal after the image pickup signal is A/D converted.

26. A striped noise removing method for an image pickup apparatus according to claim 16, wherein said light amount detector has color filters provided on a light receiving face thereof and light amount variations of the different colors spectralized by said color filters are detected.

27. A striped noise removing method for an image pickup apparatus according to claim 26, wherein said

color filters provided on said light receiving face of said light amount detector have spectralized light passing properties substantially same as those of color filters provided on said light receiving face of said solid-state image pickup device.

28. A striped noise removing method for an image pickup apparatus according to claim 26, wherein correction gains of the colors spectralized by said color filters are calculated and, after the image pickup signal is separated into colors, the correction gains of the colors are inputted to gain amplifiers to correct the image pickup signal therewith.